Keith FYI fm July 23rd

Total Comments Received: 489

Public Comments Received on the Draft Environmental Assessment for Glen Canyon Dam Modifications to Control Downstream Temperatures March/April 1999

Issue Number 1 — (112 letters received)

The present environmental assessment does not adequately address the potential impacts to the Grand Canyon ecosystem, were such a temperature control device to be installed. These impacts would be significant; therefore an environmental impact statement must be undertaken. Such a study must fully evaluate the needs of endangered fish, and consider decommissioning Glen Canyon Dam as an alternative. Federal law requires that an environmental impact statement be initiated if impacts of a proposed action are expected to be significant. Modifying water temperatures would directly impact both native and non-native fish, as well as the aquatic food base. In addition, the proposal would indirectly impact native and endangered birds which depend on food resources supported by the Colorado River, including the peregrine falcon, bald eagle, and southwestern willow flycatcher. The impacts of changing the river temperature will be significant and must be assessed for all species.

The following concerns have not been adequately analyzed in the draft environmental assessment:

* What will be the effects on the aquatic food base in the Grand Canyon?

* What will happen to the insect assemblage that supports native riparian birds?

* Will there be an increase in waterborne parasites and diseases such as Asian tapeworm, whirling disease, and Lernea?

* What will be the effects on the limnological conditions in Lake Mead and the upstream migration of non-native fish?

* Will warm water releases be available when the young humpback chub need them to survive?

* What will happen to the nutrient conditions downstream as a result of withdrawing water from the surface of the reservoir?

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Issue Number 1A — Other Concerns by Members of the Public Requesting that an EIS be Completed and that the Decommissioning of Glen Canyon Dam be Considered as an Alternative — (290 letters received)

Number of Comments Received	Comment Received
1 comment received	The ecology of the Grand Canyon waters is quite complex. Too much has been done to this area previously without proper assessment of the environmental impact.
1 comment received	Increasing the temperature range of the river should improve fish health. The fundamental problem with this tool is the implementation program. Thirty days of warming every few years will be more of a disturbance than a benefit. The warming needs to occur on a predictable annual cycle. Concerns that need to be addressed are: (1) Establishing a baseline of data on thermal sensitive processes, microbial processes, and nutrient cycling. (2) Establish a baseline of changes that will occur from pulling water from the epiliminion either directly or through field experimentation. This would mean flows from the spillways and/or river outlet tubes depending on lake elevation. Have WAPA put generators on these non-traditional release points. (3) The current levels of GCMRC funding for monitoring are inadequate under the present "shotgun" approach.
1 comment received	The following questions need to be addressed and evaluated. They are: The cost is too expensive; impacts on endangered species; nutrient loading; oxygen water content; riparian birds dependant on wetlands; what will happen in the food web and pyramid; waterborne diseases; salinity of released water; the pH of released water; water quality of released water; insect reproduction and population impact; species of fish, birds, and amphibians dependant on insects; and habitat loss. We need a full EIS to discover the significant impacts of this proposal.
1 comment received	The proposed plan glosses over critical issues concerning the health of the Lees Ferry trout fishery, such as whirling disease and competition with warm water exotics. Additionally, the plan does not thoroughly address the problem of increased predation upon natives by the aforementioned exotics and cites questionable supportive evidence concerning benefits to native fishes. Although one certainly does not have to be a scientist to be aware of the incomplete nature of this document, most I have talked to are thoroughly alarmed by the proposal as it now stands. As such, the draft EA is an incomplete, slipshod document indicative of the fast slight of hand maneuvers this entire project smacks of. I seriously doubt that NEPA compliance will be satisfied with a FONSI and I most certainly believe an EIS is called for concerning this project.
1 comment received	This modification may irrevocably damage endangered species in the Grand Canyon. I don't believe that an EA is enough to discern all the effects of this modification. An EIS is necessary and should be conducted before any modifications are made.
1 comment received	The EA in its current form does not adequately address all potential impacts to the ecosystem of Grand Canyon. I urge you to engage in a full-scale EIS for the ecosystem. The EIS must explore the complete range of alternatives.

1 comment received	Do you really know what impact this proposal will have on the fish and wildlife all along the Colorado River below the dam. I think you had better give some serious thought to how your proposal will affect all life along the river -- not just fish. Please do an EIS that addresses a full range of alternatives.
1 comment received	The native fish and other organisms that depend on predam conditions in order to thrive may benefit to some degree from warmer water temperatures, but the system also needs the sediment that was carried by the predam river to maintain the beaches and native riparian plant communities. It needs the annual spring floods to build the beaches and limit the growth of invading non-native plant species. It will never be capable of functioning properly as long as the sediment is all accumulating in the reservoir and the river is little more than a powerplant tailrace. The potential impacts of the proposed action are significant enough to justify a full EIS.
1 comment received	The present EA does not adequately address the impacts of the Grand Canyon ecosystem. The impacts are significant; therefore an EIS is required.
1 comment received	The EA is inappropriate in assessing the Glen Canyon Dam modification which may profoundly affect native endangered species in the Grand Canyon. An EIS would more fully study this critical change and could study alternatives including decommissioning Glen Canyon Dam.
1 comment received	An EIS, not an EA, should be undertaken to assess the impacts of the proposed $15 million modification to Glen Canyon Dam.
1 comment received	An EA is simply not enough of a review of the environmental situation and impacts that might be made by the implementation of this proposal. Some of my concerns that are not adequately analyzed in the EA are: What will be the effects on the aquatic food base in the Grand Canyon? Will there be an increase in water born parasites? Will the warmer waters be there when the young humpback chubs need it to survive (I have read that warmer water will only be released for 30 days a year and not during drought years)? What will happen to the insect assemblage that supports the native riparian birds? I feel that a full EIS should be made that studies the long-term environmental impacts and also looks at a wider range of options to correct the problem of habitat for the endangered species in question.
1 comment received	A full EIS is necessary to ensure that this expensive project will achieve the desired results. My concerns is that the restoration of warm water may not be enough to restore the loss of habitat and food for the native fish. Also, what would the effect of adding warm still water to the canyon environment, instead of the silty, warm run-off of pre-1964 flows. Does the Lake Powell water contain any dangerous water born parasites and diseases? Does it contain the necessary nutrients? Would the release of warm lake water harm any other species downstream? And what about fish migration at Lake Powell? All the alternatives and impacts must be considered.

1 comment received	The Colorado River should be restored to a free flowing river through Glen Canyon and Grand Canyon. I believe this can be accomplished by the decommissioning of Glen Canyon Dam. Studies have shown that the health of the Colorado River ecosystem in both Glen and Grand Canyons has been severely impacted and continues to suffer degradation by the imposition of Glen Canyon Dam, and its decommissioning is necessary for the restoration of a healthy river ecosystem. The EA needs to be expanded to an EIS to adequately study the benefits of decommissioning Glen Canyon Dam. The EA is not adequate to address the scope of restoration of a healthy ecosystem to the river.
1 comment received	The impacts of such a modification are significant enough to require a full EIS, which should consider a full range of alternatives, including the decommissioning of Glen Canyon Dam.
1 comment received	Just an EA to modify the Glen Canyon Dam and increase the water temperature of an already changed Grand Canyon is absurd -- you must do at least an EIS and consider removing Glen Canyon Dam as an option. You want native fish - get rid of the dam. Changing water temperatures is huge and an EIS is required!
1 comment received	The EA is insufficient. There are many questions of cause-and-effect which it does not address. I believe that your proposed actions will have significant impacts which must be addressed, and therefore, the situation requires a complete EIS that would fully study the needs of the endangered fish, among other aspects of the impacted ecosystem. The EIS should address a full range of alternatives, including decommissioning Glen Canyon Dam which is the only way to maintain the long-range health of the Colorado River through Glen and Grand Canyons.
1 comment received	The issued EA on the possible impacts of this modification does not fully consider the potential for long-term ecological impacts. The long-term ecological impacts of changing the river temperature may be very significant; these impacts may not all be positive for a wide variety of species. A wider range of alternatives should be considered in an EIS. It may be useful to consider alternatives ranging from "no action" to the decommissioning of Glen Canyon Dam.

1 comment received	The scope of the present proposal is far to limited. The management of Glen Canyon Dam and its subsequent impacts on the Grand Canyon and the downstream riparian ecosystem requires a full EIS. The impacts to the ecosystem of dismantling the dam entirely should be a considered alternative in any assessment the BOR does on this issue. Recently, the storage of fresh water by injecting it into ground water aquifers has proven viable. This is being done in Arizona so that the state can divert its entire Colorado River allotment even though, as yet, there is not the demand for all this water within the state. It seems that the ramifications of this technology are huge. Think about it: 75 percent recovery from favorable aquifers, no evaporation, no hassle from environmental advocacy groups. Shouldn't this idea be investigated as a way to store water and eliminate highly evaporative, salt concentration increasing, surface reservoirs. Specifically, as an alternative to Lake Powell and as a way to return the flow regime through the Grand Canyon to a more natural state. This EIS does not adequately address the potential impacts to the Grand Canyon ecosystem. Because these impacts are likely to be significant, a full EIS is required. This EIS needs to address a full range of alternatives, recognizing the latest in hydrologic technologies, and must include decommissioning Glen Canyon Dam as an alternative to have any credibility.
1 comment received	Please consider a more expanded evaluation so that an EIS is produced. The overall environmental effects of changes in the dam, but even the dam itself, should be considered carefully. All alternatives should be considered including decommissioning of the Glen Canyon Dam. Free flowing rivers (which have been present for thousands to millions of years) are far better than dammed rivers with unnatural reservoirs and many unintended negative effects on the environment.
1 comment received	I don't believe you should do this without a little further thought. It is an irrefutable fact that the deterioration of the riparian habitat in Grand Canyon will continue so long as the dam remains. Changing the water temperature once in a while probably won't accomplish much in the way of positive impact. For the kind of money you are talking about, you could de-commission the dam. BOR needs to conduct a full EIS and fairly look at both changing the water temperature and de-commission.
1 comment received	I strongly urge that a new EIS be accomplished because your EIS on file does not adequately consider the potential impacts of the proposal. Your EIS does not consider decommissioning the Glen Canyon Dam. The Glen Canyon Dam is an environmental disaster by today's standards. A new EIS would consider this reality.
1 comment received	Though the idea of releasing warm water has much appeal, since one of the major results of the dam has been the change from a warm to a cold river, it seems that we should not do more change without the study and deliberation that should have happened when the dam was constructed. The EA should not be the study document. Instead, a full comprehensive EIS should be created. The EIS should consider all alternatives, specifically including removal of the dam and therefore restoration of the river to its former condition.

1 comment received	I view your proposal as potentially a step in the right direction. However, I believe that the proposal is inadequate to fully address the problems created by the construction of Glen Canyon Dam. I believe that only by decommissioning the dam and restoring a wild and free flowing Colorado River will native fish and birds have a reasonable chance of persisting for the next millennium, not to mention the next 100 years. Because the impacts are significant, I believe that a full EIS is required.
1 comment received	I respect your concern and efforts to improve the natural biological processes on the Colorado River through Grand Canyon with your proposed seasonal warmer water draw plan. However, the impacts of this modification are very complex and diverse. Your present EA does not adequately address the potential impacts to the Grand Canyon ecosystem. These impacts will be significant and therefore a full EIS should be required to answer all of the questions. The EIS should address a full range of alternatives, including the decommissioning of Glen Canyon Dam.
1 comment received	Before spending my $15 million in what will probably be a total waste of time, effort, and money, please consider expanding the preliminary research in an EIS which will provide much more information on the eventual outcome of introducing warmer waters downstream. Since the impacts of this proposed water release are significant, an EIS is required. The EIS should address a full range of alternatives, including decommissioning Glen Canyon Dam. Personally, I believe the dam should never have been built, and the subsequent environmental problems created by it cannot be solved by a "band-aid" approach of releasing warmer water. If you really want to make my day, I'd love to hear that Glen Canyon Dam has been torn down and the Colorado River is once again flowing freely through Glen Canyon and Grand Canyon as nature intended it.
1 comment received	I am a charter member of Colorado Plateau River Guides (CPRG). In 1996, the Trustees of CPRG motioned to endorse the mission statement of the Glen Canyon Institute. In 1998, the membership of CPRG was polled concerning this issue. The result of this poll resulted in a membership endorsement to drain the reservoir called Powell. It is the opinion of CPRG that the EA issued by Reclamation does not adequately address the potential impacts to the river ecology of Grand Canyon National Park. CPRG is of the opinion that the EA must be expanded to an EIS to better evaluate the short-term and long-term impacts of these modification. CPRG is of the opinion that this potential EIS should include, as an alternative, the decommissioning of Glen Canyon Dam. CPRG is also of the opinion that the preceding EIS concerning Glen Canyon Dam was invalid because it did not address, as an alternative, dam decommissioning. We sincerely believe that the only way to restore the riverine ecology of Grand Canyon National Park is to decommission Glen Canyon Dam as soon as possible.
1 comment received	Please count me among the number who is asking you to conduct an EIS in lieu of an EA. This would rightfully address the potential impacts to the Grand Canyon ecosystem and address other alternatives such as the decommissioning of Glen Canyon Dam. If not you, who?
1 comment received	The present EA does not adequately address the potential impacts of the Grand Canyon ecosystem. Because these impacts are significant, an EIS is required. The EIS should address a full range of alternatives, including decommissioning Glen Canyon Dam.

1 comment received	With all the impacts to be considered by warming the water temperature, I would be more in favor of an EIS to further expand the study of short- and long-term impacts. Also, I firmly believe that the decommissioning of Glen Canyon Dam should be considered as a viable alternative. A dam that would never be built in this day and age. And, this is the only real solution to restoring a healthy Colorado River system.
1 comment received	Expand the EA for Glen Canyon Dam into an EIS, the impacts of the dam on the Grand Canyon ecosystem require this change. The EIS should include the possibility of decommissioning Glen Canyon Dam if this is found to be in the best interest of the ecosystem.
1 comment received	The proposed modifications to Glen Canyon Dam need to undergo a thorough evaluation which an EIS would supply. The present EA does not adequately address the potential impacts to the Grand Canyon ecosystem, which are significant. The EIS needs to include decommissioning Glen Canyon Dam as an alternative to releasing water off the top of the reservoir. It is not responsible to cause changes without thoroughly evaluating their impacts.
1 comment received	The EA does not adequately address the potential impacts to the Grand Canyon's ecosystem. These impacts are significant, therefore an EIS is required. The EIS should address a full range of alternatives including decommissioning Glen Canyon Dam.
1 comment received	While we applaud the attention this problem is getting, we also feel that the project as proposed is inappropriate and too limited in the alternatives it proposes. Recognizing the potential impacts of additional modifications to river ecology below the dam, we believe that the Bureau should prepare a full EIS before proceeding. We further believe the EIS should address a full range of alternatives, including the heroic measure of decommissioning Glen Canyon Dam.
1 comment received	The EA does not adequately address the potential impacts to the Grand Canyon's ecosystem. These impacts to several endangered species of fish are significant, therefore an EIS is required under Council on Environmental Quality regulations. The EA seems to be more concerned with maximizing the non-native trout fishery for a few miles below the dam than it does to improving the lot of endangered native fish throughout Grand Canyon National Park. The EIS should address a full range of alternatives, including decommissioning Glen Canyon Dam.

1 comment received	An EA is insufficient and does not adequately address the potential impacts to the Grand Canyon ecosystem. The environmental impacts of this project are significant a warrant a full EIS as required by NEPA. Modifying water temperatures would directly impact the native and non-native fish, as well as the aquatic food base. The proposal would indirectly impact the native and endangered birds that depend on food resources supported by the Colorado River. The decline of native fish species is partially a result of the loss of seasonally warm water. Consequently, there will need to be sufficient warm water releases available when the young humpback chub need them to survive. However, simply providing warmer water will not remediate the other dramatic changes to the riparian environment that were caused by the dam. If we are to consider the proposed modification that is inadequate in order to mitigate the impacts of a dam, we should at the same time consider decommissioning the dam, and restoring all of the natural conditions of the Colorado River that these fish need to survive. The EIS should include an intensive study of potential short- and long-term ecological impacts, and evaluate a wider range of alternatives that may preclude the need for the present proposal. One alternative that should be included is decommissioning Glen Canyon Dam.
1 comment received	I think it would be responsible to assess the Grand Canyon's natural ecosystem with an EIS. The impacts from water control significantly affect the environment. The people have a right to know. All the alternatives should be assessed, especially those beyond the anthropocentric. If the results agree, let us take down the Glen Canyon Dam and welcome the future of natural sustainability.
1 comment received	The EA does not adequately address the potential impacts to the Grand Canyon ecosystem. These impacts are significant, therefore an EIS is required. The EIS should address a full range of alternatives, including decommissioning Glen Canyon Dam.
1 comment received	The EA does not adequately address the potential impacts to the Grand Canyon's ecosystem. These impacts are significant, therefore an EIS is required. The EIS should address a full range of alternatives including decommissioning Glen Canyon Dam. I believe that the only long-term solution is a free flowing river through Glen and Grand Canyon.
1 comment received	While I applaud your attempts to mitigate the ecological damage caused by Glen Canyon Dam in your plan to release warm surface water from the reservoir, the consequences of this action must be addressed via a full EIS. Attempts to correct the problems caused by the dam with band-aid approaches like this are nothing more than feel-good ecology. Our only hope for the long-term survival of the Grand Canyon ecosystem is through the decommissioning of Glen Canyon Dam. A comprehensive EIS would necessarily need to include this option. I would strongly urge you to proceed in this direction.
1 comment received	I am writing in regard to the potential modification to Glen Canyon Dam that would send more warm water down the grand Canyon. While I agree that this may improve the situation for some of the native Grand Canyon fish, I believe that the impacts should be fully studied with an EIS before continuing. The commitment to the declining native species in the Canyon requires that measures be taken to prevent extinction. It is therefore appropriate to consider all alternatives when examining this action, including the decommissioning of Glen Canyon Dam and full restoration of the Grand Canyon ecosystem.

1 comment received	Your EA as written does not adequately address the potential impacts to the Grand Canyon ecosystem. Because these impacts will be significant, an EIS must be undertaken. An EIS must fully evaluate the needs of endangered fish and consider decommissioning Glen Canyon Dam as an alternative. You violate federal law unless you write an EIS because an EIS is required if significant impacts of a proposed action are expected. Modifying water temperatures would directly impact both native and non-native fish, as well as the aquatic food base. In addition, the proposal would indirectly impact native and endangered birds which depend on food resources supported by the Colorado River, including the peregrine falcon, bald eagle, and southwestern willow flycatcher. The impacts of changing the river temperature will be significant and must be assessed for all species.
1 comment received	I ask you to also issue an EIS that takes into account the decommissioning of the dam as an alternative. I travel to Utah several times a year to explore what's left of the Escalante canyons. It is my sincere desire that, in addition to providing much more of the Colorado's water, that draining Lake Powell would improve the wildlife below the dam (not mentioning the wildlife flooded by the dam).
1 comment received	I have heard of your proposed $15 million modifications to Glen Canyon Dam. I understand that the Bureau of Reclamation feels that these changes warrant only a minimal level of environmental review, an EA. From what scientific information I have heard, it is apparent that you are not taking into full consideration the potential environmental impacts of your proposal and that a more detailed evaluation is necessary. The potential impacts are significant, therefore an EIS, that fully studies the needs of endangered fish and takes into consideration the alternative of decommissioning Glen Canyon Dam, is needed. The health of the Colorado River's ecosystem is important to the environment of the Western United States and I feel that it is an important issue to be addressed.
1 comment received	The environmental impacts of this proposal are insufficiently understood and warrant a more detailed evaluation. Federal law requires that an EIS be initiated if impacts of a proposed action are expected to be significant. Modifying water temperatures would directly impact the native and non-native fish, as well as the aquatic food base. In addition, the proposal would indirectly impact the native and endangered birds that depend on food resources supported by the Colorado River, including the peregrine falcon, bald eagle, and southwestern willow flycatcher. The impacts of changing the river temperature will be significant and must be assessed for all species. I believe the BOR should conduct an EIS that fully studies the needs of endangered fish and which considers decommissioning Glen Canyon Dam as an alternative.
1 comment received	I highly commend your proposed efforts to benefit the humpback chub by releasing warmer water from lake Powell. However, I am rather concerned that this action is based only on an EA and not a full-blown EIS. As you well know, changing the temperature regime of a river has major consequences. Any action of such magnitude warrants an EIS, which not only considers the effects of temperature modification, but considers a wide range of alternative actions as well. Alternatives to consider in the EIS should include everything from the "no action" alternative to dam decommissioning.

1 comment received	The present EA does not adequately address the potential environmental impacts of this proposal. A more detailed evaluation (an EIS) would bring out the results of such a decision. The EIS should include the alterative of decommissioning the dam itself and restoring the river to its former self. A vast amount of water is evaporating from Lake Powell; it is silting up and becoming a polluted body of water with all the gasoline consumed by the boats. The dam at Lake Powell destroyed what was the equivalent of four Yosemites. Now is the opportunity for the Bureau of Reclamation to give back a fascinating and sacred landscape and make work for itself into the bargain.
1 comment received	The bottom line is that ultimately the dam must be decommissioned. No other action can ever restore the canyon ecosystem below the dam to its natural state needed to sustain endangered native species. At the very least, an EIS rather than an EA should be conducted. An EA does not adequately address the potential impacts to the Grand Canyon ecosystem.
1 comment received	I recently came across an article which caught my attention and prompts this response. It concerns the proposed "improvements" to Glen Canyon Dam which would permit warm water releases and the rather limited EA of anticipated impacts. Like the well intended beach restoration releases, this again seems like a band-aid approach to cover more serious wounds. I get nervous when I hear of changes coming to the land where my soul resides. It seems that for such a sacred environ, perhaps an EIS would be more appropriate to fully understand the ramifications of any proposed alterations. In addition, this would be the opportunity to take a look at any and all alternative remedies. The alternative which seemingly provides the best long-term solution to the various woes of the Colorado River ecosystem is the decommissioning/dismantling of that concrete plug of a dam which is the source of the many problems in the first place. While this may at first appear to be too radical for today's political climate, the writing is on the wall. I'm sure you have heard all the arguments by now . . . excess evaporation, sedimentation, concentration of toxins, the degradation of the downstream ecosystem, etc. The list does go on. Rather than applying one more band-aid, let's take the time and effort through the channels provided by an EIS to seriously look at all the alternatives. There is a massive opportunity here to do things right. After 40 some years of tinkering and trial and (mostly) error, the results are out there in those grand canyons. Please take the time to interpret them wisely.
1 comment received	This proposal suffers from several basic flaws which make the proposed expenditure an outrageously expensive and highly questionable investment. These flaws include: inadequate assessment of potential impacts on the Grand Canyon ecosystem in the present EA; the magnitude of these potential impacts requires an EIS; the EIS must address a full range of alternatives including decommissioning the dam.
1 comment received	This issue deserves a more serious treatment than would be provided by an EA. A full EIS that takes into account the increasingly popular option of draining Lake Powell and returning to the free flow of water through Glen Canyon would be more appropriate, considering the scope of this issue.

1 comment received	An EA has been made, however, we strongly urge that an EIS must be prepared. This will provide a complete understanding of the effects on the Grand Canyon ecosystem. A full range of choices should be included, among them the decommissioning of Glen Canyon Dam. This is a landscape that deserves the highest level of attention because it is a national treasure.
1 comment received	I am writing to request that the BOR step back from this major expenditure and instead consider the ramifications of this action through the lens of an EIS, which among other things looks at the dam and its role in the Grand Canyon ecosystem. What we need is a detailed evaluation of long- and short-term ecological impacts such as water sediment (and nutrient) conditions, backwater fish habit, aquatic food base, insect assemblage that supports native riparian birds relating to the dam and/or its alteration. Lets ask the questions and do the science now before the project is started and 15 million is spent. That is only prudent.
1 comment received	I concur with the position of the Glen Canyon Institute with regard to the need for further evaluation regarding proposed water releases from Glen Canyon Dam.
1 comment received	I am writing to you as a research engineer and recreational river user who has considerable experience exploring the riverine canyons of the southwest. I understand the Bureau has proposed a modification to Glen Canyon Dam which would increase average water temperature downstream of the dam during certain times of the year. While this move would in theory improve habitat of native species, there is probably no way of estimating the effects unless a careful review of the proposal is undertaken. In my experience, the EA process is relatively cursory and does not generally allow for careful scientific review. A more appropriate review study and review mechanism would be provided by a full EIS. This process might very well improve to be a better investment of resources than the amount currently proposed for the dam modification. I think you would agree that many partially investigated plans, when implemented, result in unintended consequences (many of which inevitably turn out to be negative). The dam's significant impacts on the aquatic and riparian zones of the lower Colorado are commonly acknowledge but poorly understood in detail. Significant changes to environmental conditions demand careful review, and I urge the BOR to go ahead with a full EIS.

186 comments received	The draft EA as presently written is inadequate. It is unprofessional and insensitive to current scientific methods. The current plan is not comprehensive and fails to consider the unique needs of separate species. It lacks a credible scientific approach and is missing critical scientific information, including information related to ecosystem impacts. Furthermore, a complete evaluation of all the F&WS's ESA concerns is missing. The FWS has indicated that there are a number of factors that work in concert to define why native and endangered species are in trouble in the Grand Canyon. Thermal issues are clearly one of those issues along with flows, non-native species, Little Colorado River management, and other issues. The EA addresses only one of the components and lacks the feedback loops to the others. The EA glosses over how the effects of evaluating the success or failure of the thermal modifications are to occur. Reclamation should articulate a well-defined study plan for evaluation as part of this package, at a minimum to include: (1) An articulated and integrated study plan (reviewed by outside experts); (2) Identification and commitment of financial support (outside of existing Grand Canyon Monitoring and Research Center funding) for evaluation of the results; and (3) A complete risk assessment and decision framework on when evaluations will occur and what criteria will be used to support a shift back from operations of the thermal modifications. Due to the significance of the endangered species concerns, the potential impact to important tribal cultural concerns, and the history of scientific review that has taken place on this issue, a full and complete EIS is warranted and should be developed. The EIS should look at the full suite of concerns that the FWS has addressed in its previous comments on the Glen Canyon Dam operations EIS as well as a full complement of alternative ways to mitigate the effects on the endangered species downstream of the dam, including dam decommissioning.
1 comment received	I am disturbed by your plans to make modifications to Glen Canyon Dam when I believe it should be decommissioned and removed. Please address this option in your current environmental review process.

1 comment received	The proposal to warm the water that is released from Glen Canyon Dam without considering the full range of options is ill conceived. In general, limiting ones options, *a priori*, usually leads to sub-optimum solutions. This is especially true in the case of Glen Canyon Dam which was built to generate electricity. Whatever justification existed for its construction is no longer valid. There is now a highly competitive market for electricity with many suppliers generating electricity for the power grid. Glen Canyon Dam is a relative modest generating plant, and the value of the electricity it generates and sells is known each year with great precision. The fuel for the Glen Canyon Dam power station is water. It was assumed in the planning for the dam that the water was free. But we now know from measurements that a great deal of water is lost from the Colorado River by evaporation and seepage because of Lake Powell. Just as there is now an open market for electricity, a market exists for water in the West. For example, the water district that serves the San Diego area has just negotiated a contract to buy Colorado River water that will be saved in the Imperial Valley by the adoption of more water efficient farming practices. Using this market value for water, the value of the water lost from Lake Powell is greater than the value of the electricity it generates. Electric utility companies routinely retire powerplants when they are no longer fuel efficient. It makes no sense to continue operation of a powerplant, Glen Canyon Dam, whose fuel bill is greater than the value of the electricity it sells. This is especially true in the desert southwest where water is scarce and electricity is plentiful. When one considers the terrible loss caused by the flooding of Glen Canyon and its free flowing river, and the other negative effects that the dam causes, decommissioning Glen Canyon Dam is the right thing to do. It will save money and the environment. Hence trying to warm the water that the dam releases is akin to a band-aid on a serious trauma. You should consider the full range of options and retire this fuel wasting powerplant. Restore the temperature of the river by eliminating the lake that is causing the problem in the first place.
1 comment received	Your efforts are appreciated but it is going to be a constant problem and a losing battle until Glen Canyon Dam is removed. Remove Glen Canyon Dam now!
1 comment received	I am all for raising the temperature so that the chub and other warm-water fish do not perish as so many other species have. However, it may be wise to appeal to the fishermen and preserve at least a bit of the world-class trout fishery. Maybe you could pipe the warm water in a few miles downstream of the dam. Sounds so simple! Of course, the best thing would be to remove that disastrous plug in the river altogether. A smart, financially sensitive bureau would try to get a handle on how that issue is likely to go. I would not be surprised if Mr. Babbitt builds quite a bit of consensus toward decommissioning. The Snake River may be first, but if decommissioning takes a hold, Glen Canyon certainly will be on the " short list."
1 comment received	Cold waters are only part of the problem. It is time to begin planning the removal of Glen Canyon Dam to restore the river within Grand Canyon National Park and as an ecological system as a whole. The destruction has gone on too long. Ecological restoration should now be the top priority.

1 comment received	Temperature control would be a band-aid on the wound the Glen Canyon Dam has inflicted on the grand Canyon. Sierra Club and many other interests (commercial as well as environmental) maintain that if the dam is removed the revenue the area would realize from recreational and other uses would exceed that which is produced by Lake Powell. The amount of water that flows into Lake Mead and then to downstream users would remain the same. The erratic flow of the uncontrolled river would discourage all but the most intrepid and experienced rafters and put a halt to the damage caused by hundreds of overnight campers which has so devastated the stretch from Lees Ferry to the take-out points.
1 comment received	Remove Glen Canyon Dam so that the whole problem will be solved and water can be restored to Grand Canyon.
1 comment received	An EA is too limited in scope and does not adequately address the potentially significant impacts of the proposed modification to the downstream ecosystem. The only solution to these problems with the EA is for the BOR to conduct an EIS which fully explores the impacts of the proposed action and considers a full range of alternatives including decommissioning Glen Canyon Dam.
1 comment received	An EA is a wholly inadequate means of assessing the environmental impact of the dam on the river ecosystem. A complete EIS with the most rigorous environmental analysis is required to assess the effects of the dam on the river and the entire northern Arizonan ecosystem. An EIS should examine the full range of options including the "No Action Alternative," various operating plans (such as the recent high discharge events), and decommissioning the dam. For 26 years since the 1973 USFWS jeopardy opinion, these issues have been held in abeyance. Now is the time to act conclusively and prepare a comprehensive EIS.
1 comment received	An EIS should be done for the following reasons: Glen Canyon is a unique natural resource and characteristics of the area including cultural resources and ecologically critical areas should be evaluated in a comprehensive manner. The effects of the proposal are like to be controversial. The degrees to which the plan may affect the environment are highly uncertain. The action is precedent setting and may affect future actions by the Bureau. The action may have an adverse impact on endangered or threatened species. An EIS will afford the public an opportunity for participation including commenting on alternatives such as decommissioning the dam.
1 comment received	A complex question of this sort may not be answered adequately by the superficial studies usually undertaken to produce an EA. Taking water from the surface of Lake Powell instead of at depth may subject fish populations below the dam to all the unburned motorboat fuel and other recreation-derived crud that tends to be concentrated in the surface layers of the lake. An EIS would give the BOR the opportunity to study, then "do the deed" that would certainly improve the health of the Colorado River system -- removal of Glen Canyon dam altogether.
31 comments received	Please complete an EIS before making a decision—and please give full consideration to the possible alternative of removing the dam. The issue needs to be studied in more detail.

1 comment received	I urge you to take the courageous step of ordering a full and complete EIS. The ever growing sentiment for serious study of dam decommissioning in the United States and internationally; the apparent lack of a full scientific review of all options available to mitigate the effects on the endangered species downstream of the dam; and other credible concerns warrant your taking the prudent course and ordering a full EIS. Perhaps it is time, after 35 years, to take another look at this issue.
1 comment received	Glen Canyon Dam should be decommissioned. You have buried a priceless site. Open it! I wish it were not necessary for citizens to fight government decisions to squander our heritage to enrich special interests. Please conserve nature's gifts for our grandchildren.
1 comment received	The Draft EA should be shelved until such time as a more adequate environmental review of cause and effect on the endangered species of the Colorado River can be completed. While temperature may be one factor, it is surely only a part of the problem. The current state should not be changed until the other causes are understood. The obvious solution is allowing nature to right the mistakes of man—remove Glen Canyon Dam.
1 comment received	The draft plan and EA is insufficient and does not address the more complex potential impacts to the Colorado River ecosystem. The presence of federally-protected endangered species is another argument for conducting an EIS. In the current EA, a monitoring and evaluation plan is virtually lacking. Among professional ecologists, increasingly the consensus is that the most reasonable of the alternative actions would be to decommission the dam.
1 comment received	The draft EA as presently written is inadequate to address the full scope of interrelated factors and processes involved int he proper functioning of the downstream ecosystem. To fully address the problems created by Glen Canyon Dam, an EIS that considers a range of alternatives including decommissioning is necessary. Anything less is a piecemeal approach that avoids major problems affecting the downstream environment. Effects of dam operation all the way down to the Sea of Cortez should be considered, because they exist and because they should be acknowledged and mitigated. Ignoring the connection between the vast evaporation losses from this misplaced reservoir and the impacts to endangered species and human communities downstream, especially in Mexico, is an embarrassing mistake that we should correct immediately. It would be pure hypocrisy to only consider such impacts close to the dam. NEPA is a wise, farsighted law designed to facilitate this process. I expect you as a public servant to uphold the spirt of NEPA.
1 comment received	The construction of Glen Canyon Dam would not have happened today. Today, the American culture and society simply would not tolerate it. The ecosystem, like so many others such as forests, coral reefs, etc., would be protected by the masses. And while I applaud your efforts to find a means to restore the ecosystem, my sense is that your proposals of temperature regulation is, at the least, "too little, too late." Most likely, it is a half-hearted effort to hold off the only inevitable solution to the problem: the commitment to decommission the dam.

1 comment received	Cold water releases are only one of many problems Glen Canyon Dam causes. Your time and public funds would be better spent planning for the demolition and removal of the entire dam itself. Anything short of razing the dam merely applies a band-aid to an ecosystem threatening condition.

Issue Number 2 — (2 letters received)

Request an additional 30 days to submit comments on the draft environmental assessment.

Issue Number 3 — (9 letters received)

Support the idea of raising the temperature of the Colorado River below Glen Canyon Dam, and feel that Reclamation is doing the right thing. Support the EA as written and feel that there is sufficient scientific evidence to support the proposed action without further delay.

Agency Issues (27 letters received)

Hopi Tribe — Reclamation does not appear to have given sufficient consideration to identify whether the current monitoring program administered by the Grand Canyon Monitoring and Research Center is collecting the appropriate baseline data to constructively monitor the effects (both positive and negative) of thermal modification on the humpback chub. Reclamation should consider other efforts (i.e., modeling) to assess the impacts of warming the waters on downstream resources.

If the Adaptive Management Program's budget is a fixed budget (as was indicated by Charley Calhoun during a meeting on February 9, 1999), the inclusion of additional research and monitoring necessary to evaluate the effectiveness of the thermal modification places an unnecessary additional strain on an already over-burdened budget. The Hope Tribe is concerned that additional funding needs will negatively impact the ability to fund equally necessary research and monitoring in other resource programs (i.e., cultural and physical).

The draft environmental assessment fails to adequately assess the effects of the thermal modification on resources of importance to the participating tribes. The Hopi Tribe is dismayed that Reclamation did not implement efforts to individually consult with the participating tribes to identify impacts to traditional resources prior to developing the public draft. The tribe suggests that Reclamation meet with the Hopi Cultural Resources Advisory Task Team to present the proposed action.

The Tribe would like to remind Reclamation that not all tribal issues of concern are covered under the Glen Canyon Dam Programmatic Agreement on Cultural Resources. The Programmatic Agreement only addresses properties that are considered to be eligible or potentially eligible to the National Register of Historic Places. Impacts to human remains, funerary objects, and sacred objects are addressed under other federal legislation, specifically the Native American Graves Protection Act (NAGPRA). Under NAGPRA, the federal land managing agency is the responsible part for compliance with the law and implementing meaningful consultation with the respective tribe(s) claiming cultural affiliation.

Arizona Department of Environmental Quality — Where applicable, the Management Agency and/or Owner/Operator should oversee construction to ensure that discharges from the watershed to all waters of the state and waters of the United States meet all applicable water quality standards.

Best Management Practices should be implemented during and after all construction phases to protect watershed condition and riparian areas, to maintain adequate vegetative cover, and to minimize the discharge of sediment, nutrients, bacteria, and manure to the watershed or to all waters of the state and waters of the United States.

Best Management Practices should be implemented for construction activities for mechanical equipment to minimize ground disturbance. A monitoring program should be implemented to evaluate the effectiveness of Best Management Practices in protecting watershed condition and waters of the state.

Be aware that portable sources of air pollution (i.e., rock, sand, gravel, and asphaltic concrete plants) are required to be permitted by Arizona Department of Environmental Quality prior to commencing operations. Contractors and subcontractors working on this project may be required to comply with these regulations.

Where applicable, the Management Agency and/or Owner/Operator should demonstrate a knowledge of waste streams, permits, and hazardous materials handling as well as indicate the destination of each hazardous waste being disposed off-site.

A Clean Water Act, Section 404 Permit may be required for the discharge of dredged or fill material into navigable waters. Numeric water quality standards must be complied with, as well as narrative water quality standards.

The Arizona Department of Environmental Quality would like to be kept informed on the progress of this project.

Northern Arizona University (Department of Biology) — Provide a forecast of how often there would be periods when Lake Powell is within 30 feet of full capacity, or what flows could be expected at various lake levels within the operating criteria. This information would be useful when planning the volumes of water/duration of temperature control for various lake levels and flow regimes.

Reclamation states at several points in the plan that the temperature control device would be used to warm backwaters for the benefit of native fish. Backwater habitats are not common below Glen Canyon Dam. The importance of this habitat relative to other more common habitats (vegetated shoreline and talus slope) needs to be defined before Reclamation spends money on augmenting the temperature specifically for backwaters.

There should be a discussion of flow scenarios that would accompany temperature modification. There is a growing body of knowledge that indicates near shore habitats (vegetation and talus) are important habitats for young native fish. Daily fluctuations in discharge disrupt these habitats and may have a negative effect on fish survival. Given that backwaters are not numerous below Glen Canyon Dam, the use of other habitats by native fish must be considered and planned for.

The plan of testing for short periods of time at elevated temperatures is not adequate to fully assess the impacts of the proposed plan on the aquatic ecosystem of the Colorado River. Reclamation should begin immediately to assess baseline condition of the aquatic food base and fish community below the dam so that adequate baseline data is available.

The proposed plan needs to include an analysis of how often and under what conditions it could operate, as well as comparisons to alternative plans before a reasoned decision can be made on whether or not to build the structure. Although the structure does not alter discharge from the dam, discharge scenarios need to be considered a start of an overall plan that would benefit native fishes. The proposed tests of the withdrawal system are not adequate to evaluate the effects on biota including native fish. Controlled experiments need to be designed and implemented before operation of the temperature control device begins.

Colorado River Energy Distributors Association **and** ***Platte River Power Authority*** — Agrees with the Draft EA's description of and proposal regarding ongoing monitoring processes being developed by the TWG within the existing adaptive management process. Such processes would be subject to review and approval by the AMWG. CREDA reiterates concerns expressed at recent AMWG and TWG meetings regarding the scope of monitoring activities. In at least partial resolution of this issue, the TWG recommended and the AMWG adopted a plan for handling research and monitoring programs in Lake Powell. The research and monitoring program for the temperature control device should conform to that plan and the Draft EA modified accordingly.

Monitoring Costs —The Draft EA estimate of less than $100,000 annual operation and maintenance costs seems reasonable. However, the table on page 15 indicates monitoring costs which exceed $1 million annually, and which are anticipated to be additional to those costs already included in the AMP budget. For the first six years this program will cost a total of $6.3 million, an amount equal to over 40 percent of the initial construction costs. There is no backup data for this cost estimate. The Draft EA should provide a detailed explanation and cost estimate for a program of this magnitude.

Source of Funding — Believe that alternate sources of funding should be considered. Construction of the temperature control device (TCD) at Glen Canyon Dam is just the beginning of an experiment. Section 8 funding under the CRSP Act is the

appropriate funding source for TCD research and O&M. Section 8 funding for O&M after TCD construction should continue at least until an adequate body of peer-reviewed scientific evidence clearly demonstrates that operation of the TCD is allowing the humpback chub to significantly expand its territory into the Colorado River mainstem. Only then and under that circumstance can the TCD change from an experiment to an operating facility, and the use of CRSP O&M funding begin.

Hydropower Effects — Are concerned about the continued degradation of Glen Canyon as a renewable power generation resource and suggests that the $37,000 per month economic impact representing reduced energy production may be understated. If the $37,000 is intended to be the value assigned to replacement power costs, then the figure should be updated to reflect more current wholesale market conditions. It is assumed that this figure was developed as a part of the referenced 1997 Feasibility Study. If this assumption is correct, then the economic effect of lost hydropower generation is significantly higher due to the change in market conditions (both price and availability) in the Southwest which have occurred since 1997.

National Park Service — We think that further study will be needed before and after a Temperature Control Device (TCD) is implemented. Furthermore, we think that exotic fish population spot controls, such as those suggested in a recent Arizona Game and Fish Department research proposal, should be tested and proven below Glen Canyon Dam before implementing temperature controls.

No comparative data were provided with the text about Hungry Horse, Jordanelle, Stagecoach, and McPhee Dams, and we do not have sufficient information to accept the implication that these facilities are being operated "without any known ancillary impacts." Also, pre-existing temperature regimes at all these facilities were markedly different than at Glen Canyon, and there may likewise be significant differences in the effects here.

Many fishery biologists have expressed concern that, although this action will provide benefits to the native and endangered humpback chub, possibly the razorback sucker, and other native species, it will also provide benefits to the non-natives. Will it allow channel catfish, carp, minnows, shiners, bass, and possibly the brown trout great access to greater lengths of the river where they do not now occur? Exotic fish population control measures may become necessary if warm water stimulates population increases or the movement of non-native predators or competitors.

There exist similar concerns with the parasitic biota that is known to occur within the system (particularly with regards to the exotic Asian tapeworm), and other pathogens that could subsequently become established. The potential for columnaris disease, which rarely becomes problematical at temperatures below 12-15° C is also undetermined.

Temperature modification may also reduce the aquatic food base. Reintroducing

a fluctuating temperature regime may eliminate those organisms adapted to constant cold water, thereby greatly reducing overall productivity and fish food availability. In a similar manner, 40 years of cold river temperatures may have resulted in the genetic selection of native fishes for increased cold water tolerance. There is a remote possibility that warmer water could cause increased mortality among the offspring of adults recruited subsequent to dam closure. This possibility should be considered.

We are also very concerned about potential side effects on other science and resource management programs, including the GCMRC, and on the three National Park Service areas with resources that will likely be affected by these actions (Grand Canyon National Park, Glen Canyon National Recreation Area, and Lake Mead national Recreation Area. We feel that these impacts have not been fully evaluated.

We wholeheartedly agree that research and monitoring for the TCD should be included in the AMP. However, we would certainly expect Reclamation to seek a formal recommendation from the AMWG regarding the inclusion of a TCD Program in the AMP before making that decision. The decision for or against including a TCD Program in the AMP should rest with the Secretary of the Interior.

We consider it to be absolutely essential for supplemental funding to be provided to evaluate the effects of this action. The protection of one resource should not come at the cost of neglecting another. We feel that science program budget increases through O&M funding are both appropriate and reasonable. Current monitoring programs will need to be increased in at least three areas to determine the effects of a TCD.

Monitoring for humpback chub breeding and of fry survival will be needed at locations other than at the confluence of the Little Colorado River to determine if the action has the desired effect. Monitoring for potential effects on Lake Powell and Lake Mead is appropriate, due to export or influx of warm water.

In addition to the general comments, we have included comments to specific parts of the Draft EA.

Grand Canyon River Guides - Flagstaff, Arizona

Trout Unlimited - Mesa, Arizona

Colorado River Energy Distributors Association

Upper Colorado River Commission - Salt Lake City, Utah

Irrigation & Electrical Districts Association of Arizona - Phoenix, Arizona

Glen Canyon Institute - Flagstaff, Arizona

Sierra Club - Southwest Office - Phoenix, Arizona

SWCA Inc. Environmental Consultants - Flagstaff, Arizona

SWCA Inc. Environmental Consultants - Logan, Utah

Game & Fish Department - Phoenix, Arizona

Wyoming State Engineer's Office - Cheyenne, Wyoming

State of Colorado - Colorado Water Conservation Board Department of Natural Resources - Denver Colorado

Grand Canyon Monitoring and Research center - Flagstaff, Arizona

Tucson Audubon Society - Tucson, Arizona & Maricopa Audubon Society - Phoenix, Arizona

Pueblo of Zuni - Zuni, New Mexico

Whirling Disease Foundation - Bozeman, Montana

Grand Canyon Trust

American Rivers - Phoenix, Arizona

Fish and Wildlife Service - Grand Canyon Fishery Resources Office - Flagstaff, Arizona

Fish and Wildlife Service - Albuquerque, New Mexico

Environmental Defense Fund

Miscellaneous Issues — (49)

Number of Comments Received	Comment Received
1 comment received	I received a letter from the Glen Canyon Institute asking that comments on the proposal be sent to Reclamation. It appears that construction of Glen Canyon Dam was a mistake, considering both environmental and water resources issues. However, I have serious reservations about the wisdom of "decommissioning" recreational and business opportunities for several million people who now use Lake Powell or whose incomes depend on these desert sailors. In return we will get a silt-filled canyon that will be nothing like the "river that nobody knew." The "restored" Glen Canyon will be visited by a few tens of thousands of intrepid explorers. What will be the political consequences of taking opportunity away from millions and giving it to thousands? I predict the environmental movement will be blamed for this trade and that it will result in efforts to overturn other Western land use designations and restrictions. From what I have read, there are two issues that may justify emptying Lake Powell. One is water losses and the other is the safety of Glen Canyon Dam (think of all the Las Vegas casinos that can be built on a million acre-feet of additional water). One should also consider the negative effects of flushing Lake Powell silt into Lake Mead. However, in the long run we are all dead and Mother Nature will decommission Glen Canyon Dam. In the meantime, let's not create more problems for ourselves by trying to undo an earlier folly.
1 comment received	Thank you for making this modification to your dam. I have several questions concerning this operation. If the goal is to ensure the survival of native fish, especially endangered, then returning natural temperature regimes is an important step. Several other aspects of river management are also critical. Control of exotic fish many of which are introduced and then stocked as game fish. Exotic fish species need to be reduced and also be removed where possible. The river needs its sediment for a number of ecological processes. What plan does the Bureau have to return the normal sediment flow to the lower part of the river?
1 comment received	I feel that it is imperative that conclusive studies be conducted on all water warming projects to see if there will be a negative impact on the current river fish population. It would be non-productive to invest large amounts of capital into a project that may have to be abandoned if negative consequences prove out.
1 comment received	I understand the intent of the plan is to modify the released water temperature for the benefit of the downstream humpback chub. I wonder what consideration has been given to the simultaneous resulting changes in turbidity, pH, alkalinity, particulate distribution, nutrient levels, oxygen content, bacteria types, etc. Is a synopsis of the findings of the study available?

1 comment received	I recently read an article regarding warming the waters below Glen Canyon Dam to promote the "Humpback Chub." I personally question the economic justification for saving such a fish versus the potential damage to a known economic value of the trout in the river below the dam. At least this is less drastic than removing the dam as some others would like done. However, the clean electrical energy produced by the dam ore than offsets any damage that resulted from flooding of canyons and cooling of water below the dam. If the humpback chub must be saved, consider transplanting stock to waters suited to its survival. Specifically I feel that the potential damage to the trout below the dam makes this project unacceptable.
1 comment received	After reading the article in the *Arizona Republic*, we can't believe our government would spend $15 million to save a fish that isn't even a part of our food chain! Our children in Arizona need to be better educated. As a grandmother and grandfather of 5 grandchildren living in other states, we're still concerned with the poor level of education in Arizona. Please save the children (our most important resource), not the chub!
1 comment received	I wish to comment on the proposal to heat water from natural resources in the Sunshine State of Arizona at a cost of $15 million, when the risk of overheating the water could destroy rather than protect the endangered species of fish. Rob Smith, Southwest Representative of the Sierra Club was quoted as saying, "The trick is to get the water warm enough for the chub, but not make it so warm that other fish will come upstream and eat them." I have not read the environmental report on the development of temperature modifications at Glen Canyon Dam, but the concept and expense for the sake of fish survival seems preposterous to me and of no benefit to the taxpayers. With the money left from the 1992 Grand Canyon Protection Act, I would rather see it spent to delay the deterioration caused by pollution from the number of automobiles and sight seeing planes visiting the park. Environmental public transportation could pay for itself over time, and studies and exhibits could educate the public on environmental projects. Or funds could be used to subsidize the railroad to the park, so more cars could be left in the town of Williams. Let's preserve what the public can enjoy, the park not the fish.
1 comment received	Ever since the striped bass was introduced into the Colorado River system, these native fish have been in dire jeopardy. The cold water coming out of Lake Powell is the only thing stopping the striped bass from coming up out of Lake Mead. As it is now, at least there are a few back waters and the Little Colorado River where these fish can survive. If you warm the river and remove the last protective barrier, there will be no native fish left. I am very much opposed to changing the temperature of the river.

1 comment received	I'm an avid flyfisher from California and am concerned about the studies that are proposed for the Colorado below Glen Canyon Dam. The fishery is constantly under "tests" by "those that be" and I think you guys should just let it be. What's the old saying, "why try to fix it if it's not broke." I know you have a job to do but increasing the temperature of the river could start the whirling disease problem. The Lees Ferry area is a great fishery and it must be good if myself and others are willing to drive 10+ hours to fish it. The studies have shown that the colder water temps, below 48°F, are responsible for keeping the whirling disease at bay and I'm all for it. Please take into consideration all that's at stake. The increase in ramping and flow rates in the past have had a serious impact on the fishery. The introduction of predatory fish that will compete with the rainbow trout is another sore subject. The list goes on and on.
1 comment received	I strongly suggest that extensive studies be done on the effects of the warmer water on the trout population before the construction of the warming devices. Certainly the concern about whirling disease must be addressed.
1 comment received	When the water warms you may get outbreaks of "columnaris disease" which you aren't potentially seeing now because of the temperature being low. Temperatures of about 12°C to 15°C are the "trip" point for this problem. Have the changes in temperature been factored into the reproductive biology downstream as to fry survival since there has been almost 40 years of adaption to cooler waters on the native species? I understand reproduction is extremely low in some cases but this could potentially help or hinder the problem of reproduction of native species. It could be that those surviving and trying to reproduce are more adapted to the cooler water and would not do well in the warmer water. On the disease issue, the temperature you currently have just below the dam may help to hold down the incidence of this problem.
1 comment received	I am concerned about how the temperature control device will impact the existing high quality trout fishery. I wonder if the proposal will adversely impact the trout fishery more than it will help the native fishes.

1 comment received	There are concerns that need to be addressed or studied further in order to protect the world class trout fishery that exists at Lees Ferry. A major consideration is that the warmer water may be a catalyst for whirling disease, which could potentially destroy the fishery. The USBR states that the original cold water flows could be restored if the project proves to be more harmful than helpful to the ecosystem. The question is would any damages done be reversible and would the USBR and USFWS be willing to admit they made a $15 million mistake? Further study is needed before the USBR throws a major curve to this ecosystem that has been developing over the last 30 years with constant cold water releases. There are unavoidable and potential problems associated with warming the rivers temperature. Among them are probably habitat expansion of predator and undesirable fish that prey on and compete with the rainbow trout and the native species as well. These fish include striped bass, carp, catfish, brown trout, and even smallmouth bass. Whirling disease is a major concern for rainbow trout. At present, whirling disease is not a concern due to the cold water temperatures that hinder the life cycle of the parasite that causes the disease. The warming project may also be used as an excuse to increase ramping and flow rates, thereby increasing hydroelectric power production. This could be (and has proven to be in the past) detrimental to the fishery below the dam. It is possible that predator fish from Lake Mead may find the temperatures of the river inviting enough to expand their habitat upriver, where they could prey upon the endangered fish and the trout (striped bass from Lake Powell and carp). In the past the Lees Ferry fishery has been subjected to control floods. Policy and safeguards need to be in place before this project is approved in order to insure that the project is not twisted into an excuse to increase flows and ramp rates for power production purposes. Another factor to be considered is how the temperature control device will be used. Is there any policy in place to prevent the warm water flows from being expanded from the proposed one to three months in the summer? At what rates will the water temperature be regulated and how often? How will fish and other aquatic wildlife react to the change in this ecosystem that has developed around constant cold water flows for the past 30 years? The USBR's apparent attitude that the only way to fully understand the ramifications of this project is to go ahead with it and see what happens. This does not sit well with me.
6 comments received	In an ecosystem as complex as the Colorado River, the proposal needs to be studied more thoroughly and more carefully. Complete an EIS.
1 comment received	Have an EIS completed by a non-partial group before anything is done.
6 comments received	To solve the problem, remove/decommission Glen Canyon Dam.
2 comments received	Do not do an EIS. Do not decommission Glen Canyon Dam. It would be a waste of money.
1 comment received	Save the river, man!

1 comment received	I understand an EA only requires disclosure and is not to be a scientific treatise. In this instance, however, where so many questions relative to temperature modifications of the Colorado River downstream of Glen Canyon Dam depend heavily on scientific information, it is desirable to attribute statements explicitly throughout the document. Although appropriate citations are generally provided in Chapter III, other sections are far less precise (although not far less important). Perhaps this is advisable in the final EA. It might be advisable to construct a table of probably responses to temperature control modifications for the various non-native, warm-water fishes rather than including statements, speculations, citing general works as information sources. Additional citations, biological, design, and operational might also be provided for Shasta Dam, Hungry Horse Dam, and other selective withdrawal systems, thereby providing a source of information on such systems to the diverse audience interested in the effects of such projects on the ecology of regulated rivers. All references should be included in the *Bibliography*, which, by the way, is physically present but does not appear in the *Table of Contents*. Mentioning other possibilities in this document for broader experimental use of this system may increase resistance by some individuals or agencies, but allows greater latitude for its future uses. It is important to note that having available a structure capable of temperature manipulation and making best use of such a device are not necessarily linked. It is critical that experiments be designed carefully and their progress carefully monitored and documented, and that potentially confounding factors (especially discharge) receive like attention. This will be an opportunity for some serious science pertinent to adaptive management. While effects of temperature are known for a number of biological processes, such as individual fish metabolism and growth, impacts of temperature change at population, community, and system levels cannot be predicted with certainty. This is especially so in Glen/Grand canyons because the system already is artificialized, both biologically and hydrologically.
1 comment received	An EIS should be developed to determine what might be best for the Colorado River. There is a belief in motion that decommissioning Glen Canyon Dam would restore the river for its long-term health. I am distressed when realizing the long-term effects of the dam—contaminated silt buildup! So, certainly this proposal should be taken under consideration in an EIS.
1 comment received	Your scientists must have gone to the Bureau's School to even suggest that the endangered fish in Grand Canyon can make out with a little warm water now and then, rather than all the time. Mostly they need SILT, Mr. Trueman, that stuff BEHIND Glen Canyon Dam! MUDDY WATER. The time has come to prepare a full EIS like every other agency must do for a huge federal project such as this. Include a Glen Canyon Dam decommissioning alternative.

2 comments received	The Bureau may be on the right track, but it is concerning to see sediment being given short shrift at the altar of temperature modification. If there is scientific justification for proceeding with temperature modification to the exclusion of modification of other parameters, the Bureau should have no trouble dispensing with concerns raised. The Bureau risks violating the public trust if it proceeds without a reasonable consideration of arguments that are being carefully prepared by people of good faith who see temperature modification as only one piece of a world-class ecological puzzle. With species hanging in the balance, mistakes made now in the effort to stave off extinction will be disastrous. I request at least a 90-day extension of the public comment period. 90 days will provide time necessary to assure that public involvement and scientific review are properly accommodated.
1 comment received	You have an almost perfect situation for the trout in the Lees Ferry vicinity. It is also a world class fishery that attracts many fishermen from all over the world and you want to start experimenting with it. "If it ain't broke, don't fix it." Please don't perform this experiment. If it doesn't work you will not be able to undo it!
1 comment received	From what I understand and have learned while fishing is that native trout thrive in cold water, the colder the better.
1 comment received	Sad to say, but species become extinct almost daily and we will never realize the loss completely, but if we lose the trout fishery, everyone involved will realize the loss. Trying to save the native fish by jeopardizing the introduced trout would be like clear-cutting an entire forest ecosystem, "hoping" that the native or original trees would grow back, even though everyone is enjoying the current beauty of the trees as well as the trees controlling the local climate, etc. Please think twice about raising the temperature since I feel it would invite whirling disease to the ecosystem, maybe not within years, but surely within a decade.
1 comment received	I urge that your agency reconsider current plans to build a diversion to drawdown water from behind the dam. My understanding is that the plan needs further outside scientific review to better assess the effects of diverting warm water downstream into the Colorado River.
1 comment received	I am writing to ask you to review and debate with your colleagues the various issues concerning the fate of the Colorado River and its tributaries and the dams on the river and the impact it has on aquatic species in the region. I have rafted down the Colorado and I feel the water is way too cold. There is a need to re-engineer the dam so warmer water flows downstream. What about passively warming the water with sunlight either directly or indirectly or there must be a way to shut off the bottom flow of cold water and redirect the upper warm water to flow downstream. Help the environment and the unfortunate ones who get in the way of our BIG projects. Nike's motto "JUST DO IT" isn't enough, we must "DO IT JUST."
1 comment received	Logic as well as scientific understanding tells us that raising water temperatures affects the species living there and the whole of the ecosystem. NEPA requires a complete EIS where major impacts could occur from an action permitted by a federal agency. You should allow no less in this instance. You would do well to look at less destructive alternatives than decommissioning the dam. The Clinton Administration lauds itself as a friend to the environment. Put your money where your mouth is!

1 comment received	I am furnishing the copy of the following letter. I dare to add that warm but depleted water can (?) provide some local mitigation for the remnants of native fish or else, but never can regain the cost sustained by US BuRec's generous action. As known from some physics' universal jokes, lost time and virginity cannot be regained (second law of thermodynamics).
1 comment received	The EA prepared for this project does not address the broad concerns implicated by this project. Such contributors to threats to endangered fish and the quantity of water flows and non-native species should be explored in a more comprehensive EIS, as should monitoring and criteria for evaluating and changing the thermal flow program.
1 comment received	Stop your mess in the canyon. How can you buy the sky? How can you own the rain and the wind? My mother told me, every part of this earth is sacred to our people.
1 comment received	Partitioning water from warmer surfaces may be a great idea, but this will never be known unless there is serious documentation. To be scientifically responsible, the plan must include: before and after sampling of food chain/food web elements under the present regime; before and after sampling of macro invertebrates; before and after sampling of fin fish and herps; generation of a "thermal envelope" hypothesis of physiology of affected organisms; anergy/mass flux model; and a comparison with the river under pre-dam conditions.
1 comment received	The EA made for Glen Canyon Dam modifications does not accurately reflect the actual impact this will have on the ecosystems that will be affected. You have omitted a number of critical studies, and you need to consult experts outside your office in order to fairly and accurately assess the proposed modifications.
1 comment received	Sounds like an EA is in place, not an EIS, and some fear this process is lacking in sufficient information necessary to make appropriate alterations to the aquatic system. Wanted to pass along a long standing support for moving away from responding to policy demands (as required by legislation such as the ESA) in short time steps. Recommends the following books: *Maximum Power* and *Environmental Accounting*.
1 comment received	Can you give me the address of someone who could tell me whether there might be a need for an elec. engineer to design the control system for this project? Sounds like an interesting project.
1 comment received	The testing of the warming of the water prior to conclusively answering questions regarding the possible negative impacts on the ecology of the Colorado River resource could lead to irreversible negative impacts on the native fishes and the trout fishery. This plan needs more study prior to implementation or abandonment of the project.

1 comment received	The plan to control downstream temperatures is a long delayed action necessary to reverse the continued decline of native fishes in the Grand Canyon system. The document, however, can be strengthened by expanding the background for project need and by providing additional support documentation (citation of published scientific reports). Regarding justification for the project, the EA does not fully document that four native fish species have already been extirpated from the Grand Canyon system since closure of Glen Canyon Dam in 1963. The draft EA similarly fails to note the abandonment of the 104 km reach of Green River below Flaming Gorge Dam and above the Yampa River by roundtail chub, Colorado squawfish, humpback chub, and razorback sucker following closure of Flaming Gorge Dam in 1962 and subsequent tailwater temperature depression. For further justification: It is certain that remaining native species will continue to decline and disappear from the Colorado River in Grand Canyon should the status quo be continued. Thermal modification is the only way to alleviate the known restriction by cold water temperatures to successful reproduction by native species. It does not seem prudent to even consider the situation where temperatures are raised only during a brief period in spring as a means to prevent cold shock of larvae drifting out of the Little Colorado River, only to subject surviving larvae to a no-growth scenario once mainstem temperatures return to pre-modification levels. This proposal would only delay inevitable mortality. Clearly, in order for larvae to survive their first winter in the mainstem, they must be afforded an extended period where adequate growth can occur. Mimicry of the pre-dam temperature regime is the only logical means to provide environmental conditions that will function within constraints of the evolutionary history of the native ichthyofauna. Provision of warmer temperatures is the only means to reverse the trend of decline of native fishes in the Grand Canyon system, and allow repatriation of extirpated species.

Glen Canyon Dam TCD DEA
Public Comments
(5/12/99 Draft Summary)

Disclaimer: This paper attempts to group and capture the comments in a relatively short summary. Detailed line-by-line comments were not included in this summary.

Summary - Scientists and FWS seem to agree that test concept makes sense, is reasonable approach, and provided more information to strengthen the EA. Trout folks don't want change. Environmental organizations are positioning for more study and/or an EIS.

All suggest need for baseline, testing, and monitoring program in EA as requested by AMWG and BR in January 1998 and peer review in April 1999. Need for more background information and referencing to support the conclusions in EA.

Bruce Schmidt (UT DWR) - Flaming Gorge Fisheries Research Project Leader at the time of the temperature control retrofit.

There is precedence for the success of warming tailwaters below high dams for the benefit of native and trout populations. The Flaming Gorge structure warmed releases during the summer, improved trout growth, restored access to the Yampa River for spawning native fish, all without adverse impacts. The benefits continue to the present.

Owen Gorman & Robert Bramblett (FWS)

Supports TCD plans & provided constructive comments on DEA.
Willow Beach National Fish Hatchery experiments show no YOY HBC growth at 12C!
Warmer temperatures are needed to improve YOY HBC growth rates.
May need to add mid-level intake if tests show TC are effective - possible.
Couple warming with steady flows - possible.
Safeguard against rapid temperature changes - included in latest design
Recommend consistent yearly operation to establish aquatic food base - ok.
Cold water does not necessarily protect native fish from predation (trout)
Rainbow trout are a major predator.
Unlike other predators, trout continue to prey on small fishes through the winter.
Use warmer temperatures to control trout in Grand Canyon
Carp and catfish are not likely to suddenly "takeover" the system
Red shiner are not likely to be able to prey on larval HBC
Physical predator controls are not likely to be effective.
Tributaries are source of parasites and disease
Cold winter releases and spike flows should suppress rates of parasites.

For growth, warm water releases should continue from late July through December.

Bill Leibfried (senior scientist SWCA)

Include work by Blinn that shows change away from more desirable diatoms as temps increase above 12C to 17C.
Include work by Hualapai DNR & SWCA showing increased mainstem temps increased catch rates of flannelmouth suckers and upstream migration of non-natives (including brown trout).
Expand discussion of no action alternative.
Safety issue - warmer water may encourage more swimming and drownings.

Richard Valdez (PhD and senior scientist SWCA)

Proceed with plan to construct TCD.
Provide detailed test and monitoring plan.
Develop and implement predator controls.

Robert Clarkson (fishery biologist, AZ DG&F and now Phoenix Area Office USBR)

Plan is necessary and long overdue.
Plan for operational scenarios is useful and insightful.
Additional information is provided to strengthen background and need.
EA needs to point out that existing condition has extirpated 4 native fish from system.
HBC distribution has contracted.
Native fish abandoned tailwater below FGD until TCD was installed.
Non-native fish and parasite explosions unlikely.
Proposed Action is likely to be reversible.
Studies show cold water does not allow growth of YOY HBC.
Need long warm release to get good growth.

W.L. Minckley (Professor of Biology, ASU)

Document is unusually straightforward and clearly written.
With a few minor criticisms, support the proposal.
Improve referencing.
Consider even warmer releases (18C).
Opportunity for some serious science pertinent to adaptive management.
System level changes cannot be predicted with certainty.
Commend BR on realistic and timely EA.

Allen Haden (NAU researcher)

Generally support plan.
Need more information on performance of TCD.
Need more baseline data.

Need test and monitoring plan.
Discuss flows that would go with TCD.
Need controlled experiments before TCD goes into operation.

USGS Biological Survey (national fish lab)

Columnaris disease may become problem at temperatures about 12-15C.
Wonders if selective pressure may have caused "evolution" to cold tolerance.

FWS Albuquerque, NM

Continues to supports a selective withdrawal program.
Gather baseline data over next 2 years.
Provide more references and information on Flaming Gorge case study.
Provide more detail on the performance of the proposed TCD.
Other actions may be needed in combination with TCD.
Consider adding a mid-level gate to TCD if tests prove effective - yes
Provide more information on lake modeling efforts.
Expand discussion for razorback sucker.

Joe Shannon (NAU researcher)

TCD is good idea and should improve fish health.
Regular, summer long warming is needed (not short 30-day releases).
Establish baseline data.
Not enough funding for GCMRC

National Park Service

Further study needed.
Test physical controls for predators.
Proposed testing the TCD appears to be a reasonable approach.
Provide data on other TCD to support "no adverse impact" claims.
Concerned with competition, parasites, columnaris disease, reduced aquatic foodbase, funding.
Need monitoring plan.

GCMRC

Endorses the project as potentially worthwhile.
Need test and monitoring plan.
Need baseline data.
Objectives should be clear.
Confirm that native species are declining.
Provide more technical information TCD
Shoreline temperatures may effect riparian habitat.

Peer review of lake model.

Arizona (DGF)

TCD is critical to survival of native fish.
Need clearly defined test and monitoring program and baseline data.
Warmer water may cause predators to migrate.
Question reversibility.
BR selected cheapest alternative - cheapest would have been $10m plan.

Colorado

Supports efforts to install TCD.
Based on Colorado's experiences with TCD's, proposed action is reasonable.
Revise Draft EA.
Include baseline, monitoring, and test plan.

Wyoming

Report well written and thorough.
Supports installation of TCD.
Warmer water will enhance HBC.
Wyoming's experiences with TCD show benefits and no significant detrimental impacts.
Do not believe there is inordinate amount of risk.
Review pannel lacked information and time to complete its charge.
Revise and reissue Draft EA.
TCD at FG has helped UC (Endangered Fish) Recovery Program.

Upper Colorado River Commission

Supports efforts to implement TCD.
Disappointed that 15yr and $100m have not produced good baseline.
Upper Division States support recovery of endangered fish and TCD alternative.
Revise and reissue EA.
Use 2 years to collect baseline data.

Native American

There are potential indirect impacts to their resources of concern(hikers, boaters, swimmers)
Baseline data.
Action may not be reversible.
Limited funding for GCMRC and their participation.
More detail on the cultural resources or traditional cultural properties sections.
Need to individually consult with tribes.

Whirling Disease Foundation

Whirling disease has caused +90% decline in trout populations in MT and CO.
Provided life history information on WD.
No effective controls available.
Recommend survey for intermediate host (T. tubifex) - found in Lees Ferry survey!
Infections begin at 9C and peack at 14-15C and near zero at 19C.

Trout Unlimited and Others

Caution. Don't make changes without good justification.
Believe that cold releases protect trout from Whirling Disease - science doesn't agree
Believe there is little evidence that TCD would accomplish goal.
Environment may be very sensitive to temperature changes.
Baseline data, test and monitoring plan n releases.
Generally concur with peer review findings.

Glen Canyon Institute & Supporters

In an apparent letter writing campaign by the Glen Canyon Institute, several hundred letters were received from the public stating that and EA is not appropriate or is inadequate. They suggested that an EIS is required due to the obvious effects and that decommissioning the dam should be considered. EA does not contain enough information and analysis for an independent review.
GCI supported the need for a baseline, test, and monitoring plan.
Include performance envelop of TCD, benefits and risks, test & monitor plan, restorative actions, and sources of funding. eeded.
Concerned with entrainment of fish in
Use GCMRC conceptual model - no documentation, not peer review, no reports, incomplete.

American Rivers

Cautiously support implementation of TCD.
Need baseline, test, and monitoring plan.
Evaluate other factors "endangering" native fish.
Need to improve support and references to support conclusions.
How to fund activities.

Grand Canyon Trust

Does not support construction of TCD based on DEA.
Need more analysis.
Convene a team of scientists.
Provided very long list of line-by-line comments.

Sierra Club

DEA does not provide enough information.
Action may be warranted.
Need to address other limiting factors.
Agree with peer review issues.
DEA dismisses dam removal too lightly.
Need baseline, test, and monitoring plan.

Environmental Defense Fund

Believe warmer water would provide benefits to native fish.
Need capability to expand flexibility with mid-level intakes.
Need detailed limnological studies.
Provide sufficient funding.
Power should pay all costs.

Power Users

Need baseline, test, and monitoring plan (and costs).
Use section 8 funds for operation, monitoring, and to mitigate lost power resource costs
Believes that costs to power may be a bit higher due to changes in market conditions.

Audubon Society

Urge BR to conduct full EIS.
Include decommissioning dam.

Grand Canyon Private Boaters Association and Others

Support project.
Glen Canyon Institutes ideas for and EIS are a "wrongheaded" waste of money.
EA is very adequate.
EIS would only really benefit researcher's funding.
Unwise to consider decommissioning dam.